The Canadian MD/PhD training program needs reinstated support

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The Canadian Institutes of Health Research (CIHR) recently terminated its MD/PhD training program without clear alternative funding in place. This misguided decision must urgently be reversed, as it has the potential to diminish a unique pool of graduates at the forefront of translational research.

The clinician-scientist is an endangered species in Canada and at risk of extinction. In June, the country's health research funding body, the CIHR, announced that it would terminate its MD/PhD training program in 2016. The program, which is analogous to the Medical Scientist Training Program backed by the US National Institutes of Health (NIH), supports the training of students who want to pursue concurrent medical (MD) and scientific (PhD) degrees throughout Canada. Termination of the CIHR program, which has been in place for more than 20 years, has left Canada's medical schools and hundreds of MD/PhD students shocked and confused.

According to the NIH, MD/PhD training programs address the "need for investigators who are well trained in both basic science and clinical research," and produce graduates who are well qualified to translate scientific discoveries into clinical applications. The CIHR echoes this ideal, emphasizing the importance of "the creation of new knowledge and its translation into improved health for Canadians." The government-funded CIHR MD/PhD Program Grant provided CAD$2.4 million (US$1.8 million) annually—less than 0.25% of CIHR's total budget for 2014–2015. It is a small fraction of CIHR's spending, but an invaluable investment for the future of Canadian health because it supports roughly 20 new MD/PhD students each year in Canada for up to six years of their training. The CIHR decision does not affect the monetary support that we personally already secured for the duration of our studies through 2018, but beginning next year, it could affect the University of Calgary Leaders in Medicine Program in which we participate, as this program currently receives funds from the CIHR MD/PhD training program.

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The decision to terminate the program is surprising, given that in 2014, the CIHR announced a new five-year strategic plan with translational priorities. The plan was budgeted at an estimated CAD$1 billion per year, hoping to accelerate "the discovery, development, evaluation and integration of health innovations into practice so that patients receive the right treatments at the right time." We strongly encourage this focus; achieving this goal, however, may be more difficult once MD/PhD support is cut. For example, although some MDs are involved in research, this is typically secondary to their clinical practice. Conversely, MD/PhDs generally dedicate a large portion of their time to research.

Although the CIHR does not publicly disclose physician involvement in research, US data show that only about 1.5% of MDs have research-oriented careers[1], making it challenging to rely on them exclusively to fill the country's need for translational research. In contrast, 66% of MD/PhDs in the US pursue research-oriented careers in academic centers[2], acting as prominent knowledge-translation advocates and educators. In addition, compared to PhDs or MDs, MD/PhDs are uniquely schooled in both science and clinical practice. Such fluency in both realms makes MD/PhDs particularly well qualified to conduct translational research. CIHR seems to agree with this assessment: 11 of 16 Clinician-Scientist Salary Awards, which support early career clinician-scientists with outstanding potential, were granted to MD/PhDs over the past three years. In the US, MD/PhDs have had greater success rates (34%) than MDs (28%) in attaining their first NIH R01 grant[3]. The decision to terminate the MD/PhD training program is thus especially puzzling in light of the CIHR's translational research priorities.

With CIHR MD/PhD support, students graduate with relatively less debt than that of their MD colleagues—a reasonable tradeoff, considering that MD/PhDs enter the workforce five to seven years later than MDs. The average gross clinical earnings for internal medicine specialists is CAD$387,967, according to statistics from the Canadian Medical Association; given this estimate, the delay can equate to around CAD$2.3 million in lost gross earnings—a testament to the dedication of MD/PhDs to research. The combination of increased debt, longer training durations, eliminated funding and many years of sacrificed income is a clear disincentive for potential MD/PhD trainees in Canada. Although the CIHR insists that it offers alternate funding for such dual-degree candidates, the resources it points to are three-year PhD scholarships, which are insufficient for the long durations of clinician-scientist training. At present, the CIHR has not specified plans for revitalizing faculty-based, integrated, long-term MD/PhD support similar to that offered in the past two decades.

For Canadians, the CIHR decision will mean fewer MD/PhDs to champion integrated approaches to both science and medicine. Internationally, Canada will continue to produce top-notch clinicians and outstanding scientists—but if you are looking for someone who has undergone extensive training to become bilingual in both disciplines, you may soon find fewer of them in Canada. The revocation of funding for the program could have detrimental long-term ramifications on medical advances in Canada. It is crucial that specific funding for MD/PhDs be put in place to realize the CIHR's vision of translating scientific knowledge into clinical practice. We call upon the CIHR, as a champion of health research, to act on this urgent matter by reinstating funding for MD/PhD training programs in Canada.

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1. Garrison, H.H. & Deschamps, A.M. *FASEB J.* **28**, 1049–1058 (2014).
2. Brass, L.F. *et al. Acad. Med.* **85**, 692–701 (2010).
3. Dickler, H.B., Fang, D., Heinig, S.J., Johnson, E. & Korn, D. *JAMA* **297**, 2496–2501 (2007).